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10/721,735	11/25/2003	Seung Hoon Kim	10125/4127	3288

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Brinks Hofer Gilson & Lione
Post Office Box 10395
Chicago, IL 60610

EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

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11/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/721,735

Applicant(s)

KIM, SEUNG HOON

Examiner

Michael H. Caley

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-26 and 28-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-26 and 28-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 7, 10-16, 21-26, 28, and 31-35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al. (U.S. Patent No. 5,293,262 "Adachi") in view of Abileah (U.S. Patent No. 5,262,880).

Regarding claims 1 and 36, Adachi discloses an LCD device having a direct-type backlight comprising:

an LCD panel (Figure 5 element 1) for displaying an image;

a fluorescent lamp (Figure 5 element 13) disposed below the LCD panel in an area substantially corresponding to the LCD panel;

a heat protection plate (Figure 5 element 15) formed between the LCD panel and the fluorescent lamp, for transmitting the light emitted from the plurality of fluorescent lamps, and for preventing the heat generated in the plurality of fluorescent lamps from being transmitted to the LCD panel; and

a unitary case (Figure 5 element 12) supporting the fluorescent lamp disposed below the LCD panel in an area substantially corresponding to the LCD panel and the

heat protection plate, wherein the heat protection plate is disposed in the case and contacts the case (Column 1 lines 65-68).

Adachi fails to disclose the lamp as comprising a plurality of fluorescent lamps and a first open area as disposed between the heat protection plate and the LCD panel. Abileah, however, teaches a plurality of lamps (Figure 6; Column 13 line 55 – Column 14 line 8) and a first open area as disposed between the heat protection plate and the LCD panel (Column 12 lines 51-53; Figure 1A air gap #3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display disclosed by Adachi to include a plurality of fluorescent lamps and a first open area disposed between the heat protection plate and the LCD panel. One would have been motivated to include a plurality of lamps to more uniformly distribute light over the area of the display (Abileah: Column 13 lines 55-67). One would have been motivated to include an open area between the heat protection plate and the LCD panel to allow for proper focusing of light and thermal management (Abileah: Column 9 lines 20-32).

Alternatively, see Figure 1A element IR Filter as a further teaching of a heat protection plate as proposed.

Regarding claims 2, 15, 16, and 37 Adachi discloses the heat protection plate as comprising a diffusion plate (Column 1 line 68).

Regarding claim 3, Adachi discloses the heat protection plate as having a light transmitting plate (Column 1 line 68).

Regarding claim 4, Adachi discloses a reflecting plate disposed to reflect light from the fluorescent lamps to the LCD panel (Figure 5 element 14).

Regarding claim 6, Adachi discloses the reflecting plate as formed on the case (Figure 5).

Regarding claim 7, Adachi fails to disclose the reflecting plate as having a high optical reflectivity material containing at least one of silver, titanium, and a polymer. Abileah, however, teaches the reflecting plate as having such a high optical reflectivity material (Column 12 lines 28-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the reflecting plate to have a high optical reflectivity material containing at least one of silver, titanium, and a polymer, as proposed. One would have been motivated to construct the reflecting plate as proposed to benefit from an efficient light distribution (Column 12 lines 28-33).

Regarding claims 10 and 21, Adachi as modified by Abileah discloses a second open area disposed between the heat protection plate and the plurality of fluorescent lamps (Adachi: Figure 5).

Regarding claims 11-14 and 22-26, 28, 31-35, and 38, Adachi fails to disclose the heat protection plate as further comprising a plurality of heat protection panels and a third open area as disposed between at least one pair of the plurality of heat protection panels. Abileah, however, teaches the heat protection plate as comprising a plurality of heat protection panels and the third open area (Figure 1A elements IR filter, diffuser, display, air gaps #1, #2, and #3). Abileah discloses:

a first diffusion plate (Figure 6 element 204) and a first optical sheet (Figure 6 element 202b) disposed between the LCD panel and the plurality of fluorescent lamps;

a heat protection plate (Figure 6 element IRF or alternatively 202a or combination thereof) between the LCD panel and the plurality of fluorescent lamps; and,

a first open area disposed between the heat protection plate and the LCD panel (Figure 1A element AIR GAP #1 or AIR GAP #2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the heat protection plate to comprise several panels and to provide an air gap between the heat protection panels as proposed. One would have been motivated to construct the heat protection plate as proposed to benefit from a uniform light distribution and wide viewing angle (Column 3 lines 5-12, Column 3 line 63 – Column 4 line 13).

Claims 8, 9, 19, 20, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi in view of Abileah and in further view of An et al. (U.S. Patent No. 6,392,724 “An”).

Adachi fails to disclose the case as having a high heat conductivity material. An, however, teaches a high heat conductivity aluminum as the material for the case as a means of maintaining a lower temperature of the display unit (Column 5 lines 15-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the case to comprise a high heat conductivity material such as aluminum. One would have been motivated to incorporate such a material into the case as a means of maintaining a lower display temperature and thus a higher display quality (Column 5 lines 15-18).

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi in view of Abileah and in further view of Kanatsu et al. (U.S. Patent No. 6,867,825 “Kanatsu”).

Adachi as modified by Abileah discloses all of the proposed limitations except for the light-reflecting means as having a high optical reflectivity material coated on a high heat conductivity material. Kanatsu, however, teaches such a reflector as a means of efficiently radiating heat from the lamps (Column 8 line 62 – Column 9 line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the reflector to comprise a high heat conductivity material such as aluminum. One would have been motivated to incorporate such a material into the case as a

means of maintaining a lower display temperature and thus a higher display quality (Column 8 line 62 – Column 9 line 3).

Response to Arguments

Applicant's arguments filed 9/18/07 have been fully considered but they are not persuasive.

The examiner has identified element 15 of Adachi as a heat protection plate. Applicant argues that since Adachi discloses element 15 as a diffuser that the reference does not teach all of the limitations of the independent claims (see Remarks, Page 9). The examiner disagrees with this conclusion and maintains the rejection.

Applicant's specification cites a diffuser as an example of a heat protection plate. See, for example, Page 7 paragraph 0032:

“The heat protection plate may be made from a variety of materials, including those used for the light scattering means or a light transmitting plate.”

And Page 8 paragraph 0046:

“An LCD device according to the first embodiment of the present invention uses a diffusion plate and an optical sheet as a heat protection plate, in addition to performing functions of light diffusion and concentration.”

Further, claim 2, which is dependent on claim 1, further limits the heat protection plate to being one of a diffusion plate and an optical sheet. Therefore, Remarks stating that the diffuser of Adachi does not disclose the claim limitations contradicts the disclosure of the specification and the claims as presented.

One skilled in the art would recognize element 15 as a heat protection plate given the definitions and examples presented throughout Applicant's specification. Further, one skilled in the art would recognize the ability of element 15 to (1) transmit light emitted from the plurality of fluorescent lamps and (2) to prevent heat generated in the plurality of fluorescent lamps from being transmitted to the LCD panel due to the placement of the diffuser between the lamps and the LCD panel and the ability of a light diffusing material to absorb heat.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

Application/Control Number:
10/721,735
Art Unit: 2871

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Michael H. Caley', with a stylized flourish at the end.

Michael H. Caley
November 2007